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INTERNATIONAL COOPERATION TREATY

PCT

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

10/530461



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| Applicant's or agent's file reference 62492A | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416) | |
| International application No. PCT/US 03/29070 | International filing date (day/month/year) 16.09.2003 | Priority date (day/month/year) 07.10.2002 |
| International Patent Classification (IPC) or both national classification and IPC H01B3/00 | | |
| Applicant UNION CARBIDE CHEMICALS & PLASTICS TECHNOLOGY et al | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
 - ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

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| Date of submission of the demand 02.04.2004 | Date of completion of this report 04.10.2004 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized Officer Marsitzky, D Telephone No. +49 89 2399-7275  |

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US 03/29070**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-10 as originally filed

Claims, Numbers

1-10 as originally filed

Drawings, Sheets

1 received on 09.08.2004 with letter of 06.08.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|------|
| Novelty (N) | Yes: Claims | 1-10 |
| | No: Claims | |
| Inventive step (IS) | Yes: Claims | 1-10 |
| | No: Claims | |
| Industrial applicability (IA) | Yes: Claims | 1-10 |
| | No: Claims | |

2. Citations and explanations

on a separate sheet

1. Remarks:

- 1.1 The term "about" describing ranges should be deleted in the whole appliaction and especially the claims to render the scope of protection sought for clear.
- 1.2 Claims 1-2, 5, 8 attempt to define the subject-matter in terms of the result to be achieved ("... in an amount to provide..."). Such a definition is only allowable under the conditions elaborated in the Guidelines C-III, 4.7. In this instance, however, such a formulation is not allowable because it appears possible to define the subject-matter in more concrete terms, viz. in terms of how the effect is to be achieved (by including the amounts of the components according to the description).
- 1.3 Claim 1 is insofar unclear that the polar polymer modifier can be an ethylene styrene copolymer which falls under the definition of compound a) = ETHYLENE COPOYLMEER in the composition. This should be clarified.

2. Article 33 (2) PCT:

The present application discloses a HV-DC cable insulation comprising a) at least one ethylene copolymer, b) at least one polar polymer modifier and c) at least one ion scavenger. Claim 8 includes also d) carbon black to impart semiconductivity. D1 (= WO 9944206) does not disclose ethylene copolymers (instead: a grafted XLPE) and does not include compounds b) and c). D2 (= WO 9940589) also uses XLPE grafted with a polar comonomer and disloses additives only on a list for use as HV-DC cable insulation. D3 discloses in general ethylene based polymers with special additives (not b) or c)) for use in HV-DC- cable applications. Thus the subject matter of claims 1-10 is considered to be novel.

3. Article 33 (3) PCT:

D2 is considered to represent the closest prior art since it tries to solve the same technical problem (= provision of HV-DC cable insulations and semiconductive shields). The difference of the present application is the use of a polar polymer modifier and an ion scavenger as additives for an ethylene copolymer. The objective technical problem can be formulated as to provide alternative insulations with low space charge. Since no hint can be found in the prior art that the compositions of the present application solve the technical problem (see figures 1 and 2), the subject matter of claims 1-10 is inventive.